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INTERNATIONAL COOPERATION IN FINANCIAL ASSISTANCE AND TECHNOLOGY TRANSFER

Programme element II

Report of the Secretary-General

SUMMARY

The present report comprises two sections: the first section discusses financial mechanisms and the second technology transfer. The report recognizes that there are limited opportunities to increase funds from international public sources other than official development assistance (ODA) to finance sustainable management of forests. Several case-studies quoted in this report suggest that there is some potential for raising additional financial resources at the domestic level in developing countries, although the majority of the developing countries, particularly the least developed countries with low forest cover, may have limited ability to raise sufficient funds to finance the activities required to achieve sustainable development of their forests. External sources of public funds, particularly ODA, are therefore still needed to finance forest activities as well as to leverage private sector investment in these countries. Market-based instruments (MBIs) also need more attention. The private sector is considered an important major group for investment in sustainable development of forests. Policy reform and

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formulation of better incentives to attract these investments might emerge as one of the priorities in the coming years in many developing countries. For several types of funds, as discussed in this report, it is of critical importance to overcome uncertainty and risks related to their investment. Establishment of an information system to speed up private sector investment is also considered.

The second section of this report discusses technology transfer as an important step for developing countries to leapfrog in terms of managing their forest resources on a sustainable basis, and of developing competitive and more efficient forest industries. The majority of technologies for forest management required by developing countries are well known and are already being practised in some developing countries. This experience could be shared. Some of the proposed measures to encourage more effective transfer of technology to developing countries include using technology needs assessment (TNA) as a tool for analysing requirements for technology; strengthening research and development (R and D) institutions, particularly in the developing countries; exploring the possibility of new international research institutions for sustainable forest management; and developing global databases specific to sustainable forest management and forestry.

In view of limited financial resources and the need to optimize the existing available funds, in-country coordination and coordination among donors are crucial. National forest programmes (NFPs) provide a good basis for setting priorities on cooperation including financial assistance and technology transfer between developing countries and donors.

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INTRODUCTION

A. Mandate

1. The present report describes progress on the implementation of United Nations Conference on Environment and Development decisions related to programme element II, "International cooperation in financial assistance and technology transfer for sustainable forest management", of the work programme of the Ad Hoc Intergovernmental Panel on Forests. The work under this programme element is guided by the decisions taken at the third session of the Commission on Sustainable Development and the first session of the Ad Hoc Intergovernmental Panel on Forests, and further elaborated at the second session of the Panel, held in Geneva, 11-22 March 1996.

2. The third session of the Commission and the first session of the Panel emphasized the need to explore and consider ways to address the areas relating to the transfer and development of environmentally sound technology on favourable terms as mutually agreed and the mobilization of financial resources to assist developing countries in pursuing policies and comprehensive strategies for achieving sustainable forest management, taking into account the ongoing work of the Commission and other relevant processes. Consideration should also be given to ways of improving efficiency and coordination of bilateral and multilateral assistance in delivering forestry programmes, including proposals for cooperation at national and international levels (a) within and among all relevant multilateral institutions, including United Nations organizations and the World Bank and (b) between bilateral and multilateral donors.

3. At the second session of the Panel (see document E/CN.17/1996/24), the Panel emphasized that Agenda 21, 1/ particularly chapter 11, the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (Forest Principles) 2/ and the relevant work of the Commission on Sustainable Development provided the general framework for relevant deliberation in the Panel, which should focus, however, on forest-related aspects of international cooperation in financial assistance and technology transfer (para. 40). It was recognized that additional levels of funding from all sources, including public and private sector investment, were needed to bring about sustainable forest management (para. 43). The Panel also felt that more emphasis should be given to the formulation of recommendations and options for action on technology transfer (para. 57). It also highlighted the need to further strengthen North-South and South-South cooperation in technology transfer (para. 57).

4. This report was prepared by the United Nations Development Programme (UNDP) as the lead agency for programme element II, in consultation with the secretariat of the Ad Hoc Intergovernmental Panel on Forests in the Division for Sustainable Development of the Department for Policy Coordination and Sustainable Development of the United Nations Secretariat. Preparation of the report benefited from the outcome of the inter-sessional workshop on finance (co-sponsored by the Government of Denmark, South Africa and UNDP, and convened from 4 to 7 June 1996 in Pretoria, South Africa) held in support of this

programme element, as well as relevant material produced by the Commission on Sustainable Development.

5. This report should be seen as being on a continuum that includes the report of the Secretary-General on this programme element (E/CN.17/IPF/1996/5) prepared for the second session of the Panel. It does not dwell on issues that were already addressed in detail in the previous report, but takes into account the issues raised during the second session of the Panel regarded as needing further analysis, as well as those raised and discussed during the Pretoria workshop on finance mentioned above.

6. The report of the Secretary-General before the Panel at its second session provided information and a preliminary analysis of the overall situation as regards this programme element, as well as an outlook for forest development in the area of financing and technology with particular reference to international cooperation.

B. An overview of the second session of the Ad Hoc Intergovernmental Panel on Forests

7. While considering this programme element at its second session, the Panel felt that its further deliberations could benefit from an elaboration of and greater emphasis on a few specific issues. The Panel felt that there was a need for analysis of mechanisms and policy options relevant to actual and potential international and national financial services; suggestions on criteria and indicators for monitoring financial flows, market forces and consumption patterns; examination of funding for relevant capacity-building programmes; and study of the roles and scopes of national environmental funds, pricing, subsidies and deforestation charges (para. 60).

8. In connection with the private sector, the Panel emphasized the need to examine its role, including in international trade and investment, and to examine the feasibility and desirability of codes of conduct in sustainable forest management (SFM). The role of innovative funding sources and mechanisms, as well as the need for improved coordination among donors, multilateral agencies and recipient countries, was also felt to warrant more in-depth study and exploration.

9. As regards transfer of technology, the Panel felt the need for examining ways and means of promoting more effective transfer of technology, in both public and private domains; identifying suitable existing and potential mechanisms; and strengthening North-South and South-South cooperation, as well as increasing the role of research organizations.

I. PROGRESS ON FINANCE

10. It is generally recognized that there is a depletion of forest capital worldwide owing to deforestation and forest degradation. This is a global phenomenon occurring in tropical, temperate and boreal forests. As discussed in the meeting co-sponsored by the Government of Denmark, South Africa and UNDP,

developing countries are attracting gross investment of about US$ 20 billion per annum from domestic and foreign sources. At the same time, however, they are suffering a disinvestment (or depreciation) of forest capital estimated roughly at about US$ 45 billion per annum, as a result of deforestation. This results in a net negative investment of some US$ 25 billion per annum. Without major changes in policy and regulatory regimes, this huge investment gap will continue to increase.

11. It should also be noted that domestic funding for forestry has risen substantially in several developing countries. However, during the last few years many donors have reduced official development assistance (ODA) and forestry ODA has declined in real terms. These trends should be reversed. Moreover, forestry ODA goes to relatively few countries among those that require such assistance. A promising new emphasis is a shift in forestry ODA from traditional to sustainable forest management, rural development and conservation. Both socio-economic and environmental benefits of forestry justify an increase in the sector's share of ODA which now stands at only 3 per cent of the total. In addition, ODA contribution in 1993 was only 27.2 per cent of the needs of the forest sector as specified in Agenda 21, chapter 11 ($1.54 billion, against an annual need of $5.67 billion).

12. Meanwhile, private investment flows to developing countries have been rising and are now five times greater than ODA. One critical task is to direct private investment towards sustainable forest management. SFM can provide an efficient, effective and least-cost alternative when social and environmental benefits are included in the overall economic equation. In developing countries, however, the current flows of private investment are highly concentrated among a few countries with export potential while serious shortages of funds are experienced in countries where forestry is oriented towards domestic markets.

A. Different countries, different needs

13. There is no patent solution or path for achieving SFM that it is suitable for all countries to adopt or follow. There are many factors that determine their priorities, strategies, and needs. Countries' individual characteristics influence their capacity to mobilize financial resources; effectively utilize financial assistance; and adapt, adopt and develop technologies to achieve sustainable forest management. However, the relationships between the size of forest cover, per capita income and the level of forest development may, to some degree, provide a crude but illustrative picture, indicating the possibility of adopting similar approaches to addressing the issues of finance and technology transfer, by countries located in proximity to each other in the matrix provided in table 1.

Table 1. Proportion of countries in the various country groups (classified by per capita income range) within each category of total country forest area, and contribution of each group and each category to total world forest cover, 1990

(Percentage)

Country group by gross national product (GNP) per capita in dollars

Total forest area in a country (millions of hectares)	Over 15,000	4,000-15,000	2,000-4,000	1,000-2,000	500-1,000	Under 500	Total world forest cover
Over 50	13.27 (2)		38.23 (2)	3.54 (2)	3.19 (1)	8.68 (3)	66.9 (10)
30-50	1.15 (1)		3.74 (3)		2.48 (2)	4.05 (4)	11.42 (10)
10-30	2.68 (5)		1.88 (4)	1.69 (4)	1.26 (3)	5.29 (11)	12.8 (27)
5-10		0.24 (1)	0.69 (3)	0.92 (4)	0.70 (3)	1.22 (6)	3.77 (17)
Under 5	0.71 (10)	0.58 (11)	0.84 (16)	0.20 (10)	0.41 (18)	Over 1.91 (33)	Over 4.65 (98)
Total world forest cover	17.81 (18)	0.82 (12)	14.54 (28)	6.35 (20)	8.04 (27)	Over 21.15 (57)	

Note: Numbers in parentheses in the body of the table represent number of countries corresponding to a given percentage.

14. Several important points relevant to financial assistance and technology transfer for SFM, are illustrated in table 1. About 67 per cent of total world forest cover is located in 10 countries with forest cover of more than 50 million hectares (ha) each. Combined with another 10 countries endowed with a forest cover in the 30-50 million ha range, a total of 20 countries represent 78 per cent of the world's forest cover. Of these 20 countries, 3 are characterized by per capita income greater than $15,000, 7 by per capita income between $1,000 and $4,000 and 10 by per capita income of $1,000 or less, representing 14.42 per cent, 45.5 per cent and 18.4 per cent of the world's forest cover respectively.

15. Forests in 115 "less forested" countries (less than 10 million ha) represent about 8.42 per cent of the total world's forests. About 60 countries of this group, with per capita income of $1,000 or less, contain only about 4.24 per cent of total world's forests.

16. The information in table 1 should also be viewed in light of the relative development level of forest-based industry. In this context, it should be noted that only a few developing countries, namely, Indonesia, Malaysia and Brazil, belong to a group of high-level exporters of wood products in the international market and by implication also have a highly developed forest-based industry. Several other countries such as Chile, Gabon, Cameroon and Papua New Guinea also have substantial exports of forest products but at a relatively lower level. It is possible for a country with low forest cover but with high per capita income

to import forest products from elsewhere. Several developing countries such as the Republic of Korea, China, Taiwan Province of China and Thailand are now among the major importers of forest products in the international market.

17. Needless to say, the countries as characterized by the different categories in the matrix of table 1 have equally differentiated need-profiles concerning financial assistance, technology transfer and points of most effective intervention for achieving sustainable forest management.

B. Discussion in the Commission on Sustainable Development

18. The subject of financing sustainable forest management (SFM) involves the application to the forest subsector of the results of the analysis of financing sustainable development in general that has been undertaken by the Commission on Sustainable Development regularly since the United Nations Conference on Environment and Development, most recently at its fourth session (18 April-3 May 1996).

19. The deliberations of the Commission on Sustainable Development on financial issues of Agenda 21 have been supported by extensive documentation. 3/ This documentation describes trends in official development finance, the extent of progress in dealing with the external debt problems of developing countries, and the role of the private sector in financing sustainable development, and its content is therefore not recapitulated here. It also describes a wide array of policy approaches, including enabling policies to encourage more private sector financing, innovative financing mechanisms at the national level such as economic instruments and national environmental funds, and such international innovative mechanisms as jointly implemented (JI) activities in the context of the United Nations Framework Convention on Climate Change. 4/

20. One of the major contributions of the work on finance in the Commission on Sustainable Development has been the elaboration of a matrix of policy options and financial instruments cross-classified by several sectors. Regarding the forest resources sector, the matrix identifies a number of specific financing instruments, a..d also includes others that are relevant under the sector headings of sustainable development, biodiversity and fragile ecosystems. Those portions of the matrix are reproduced in table 2.

21. The scope for using many of these instruments is discussed in the following sections of this report. It is perhaps worth noting that forest sector finance may also be considered in so far as it relates to the four distinctive services that it is meant to facilitate. The first is the economic development of forest activities where finance is mobilized primarily by enterprises producing for the domestic or international market. The second is the economic services that government often provides to encourage private sector development, for example, by provision of transportation infrastructure, extension services, pre-investment studies, and so on. The third is the management of protected areas, which is normally undertaken by government, and the fourth is the provision of extraterritorial environmental services such as carbon

Table 2. Matrix of policy options and financial instruments

Sector	Economic and financial reforms	Property rights	Rent capture/ resource pricing	Subsidy reduction	Taxation	Environmental charges	Innovative domestic mechanisms	Innovative global mechanisms
Sustainable development	Competitive capital markets	Secure property rights	Full-cost pricing	Reduce energy and capital subsidies	• Green taxes • Reduction of distortion-ary taxes	Depletion or pollution charges	• Ecolabel-ling • Ecofunds • Sustainable development equity funding	Joint implementation
Biodiversity	• Environ-mental funds • Venture capital	Biodiversity patents	Prospecting fees	Reduce land conversion subsidies	Habitat protection subsidy	Deforestation charge	• Biopros-pecting fees • Ecotourism fees • Scientific tourism fees	• Patents Intellectual property rights • Tradable conservation credits (TCCs)
Forest resources	Environmental funds	• Long-term conces-sions • Bidding	Forest product pricing	• Below-cost timber sales • Conversion subsidies	Forest concession taxes	Deforestation charge	• Watershed charges • Tradable reforesta-tion credit	• Tradable forest protection obligation • Carbon offsets
Fragile ecosystems	Environmental funds	Communal property rights	Pricing of ecological functions	Removal of land conversion and agrochemical subsidies	Differential land-use taxes	Differential land-use charges	• Relocation incentives • Transfer-able development rights (TDRs)	Tradable conservation credits (TCCs)

sequestration and biodiversity which is often closely related to the management of protected areas.

C. Innovative public financing

1. Domestic sources

22. Domestic sources have contributed and will be contributing most of the financing for activities in support of sustainable forest development. Two strategic approaches may be employed as regards forests: first, increasing revenues and second, reducing costs due to unsustainable forest practices. A number of factors are associated with lesser investment in the forest sector and most are related to undervaluation and lack of awareness of the multiple values of forests (please refer also to the reports of the Secretary-General to the Panel at its third session on programme elements III.1 (a) (E/CN.17/IPF/1996/20) and I.1 (E/CN.17/IPF/1996/14). The use of market-based instruments (MBIs) is one potential approach for generating new and additional resources at the domestic level. The objective of MBIs is to accomplish full-cost pricing, reflecting depletion of the natural resource as well as other associated environmental, social and/or economic costs. This could be achieved by increased rent capture; resource user-fees; environmental charges; environmental performance bonds; subsidies/incentives; outright sale of land and/or resources; and licensing and concession auctions.

23. During the last decade, MBIs have been used quite successfully in some developed and developing countries for generating additional revenues and reducing costs due to environmental damage, through fiscal means and through fees and charge systems. Experiences from countries with high forest cover and a higher level of forest-based industrial development in applying increased royalty rates, performance bond deposits and other fiscal measures to increase revenues for SFM indicate a potential for replication in countries with similar profiles. Developing countries such as Indonesia, Brazil and Malaysia would fall into this category.

24. For countries with a relatively extensive forest cover, but with less developed forest-based industry, the focus would be to create the necessary environment and incentives to attract private investment for sustainable forest management and utilization. On the other hand, countries with limited forest cover, low per capita income and few forest-based industries, but a high demand for forest products and services, that are facing the challenge to fulfil subsistence needs, may experience severe difficulties in trying to mobilize domestic, private and public funding. International cooperation is expected to play a particularly critical role in financing SFM in this category of countries.

2. Prospects of public financing from international sources

25. Apart from forest-related ODA, there is a dearth of major international mechanisms geared towards financing forest-based activities. The Global Environment Facility (GEF), while important, focuses mainly on forest-dependent

resources and functions, supporting incremental costs relating to activities involving conservation of biodiversity and mitigation of global climate change. GEF is not designed to leverage funding for SFM and forest-based economic development.

26. ODA can be used more effectively to leverage private sector investment. Indeed, without public funds, the private sector will often find it difficult to invest in early stages of both SFM and the development of forest-based industries. ODA, however, is likely to remain severely limited.

27. Innovative mechanisms for financing sustainable development have been proposed and discussed intensively in such forums as the Commission on Sustainable Development. Some of the proposed schemes have been particularly relevant to forest-related activities, such as joint implementation (JI). Others, such as debt-for-nature-swaps, are applied in some developing countries but not yet on as large a scale as that hoped for. Most of these schemes have been proposed with the marketability of forest-dependent resources and services, such as biodiversity and carbon sequestration in mind.

28. Most of the existing proposals to increase revenue, through MBIs and other innovative schemes, are intended to support the development of forest resources in producing countries. As these are benefits of forests that extend beyond the border of countries, so are there also common issues and shared challenges that extend beyond an individual nation, and that are more appropriately addressed at the international level. As many MBIs have already been used successfully to generate financial resources for the development of forests at the national level, there may be a potential for the MBI concept to be emulated at the international level. The additional revenue from MBIs at the international level could be used as a source complementary to ODA and GEF of support of forest activities at the global level. Consideration of further exploration of various innovative ways to generate additional revenues at the international level is suggested.

29. Five case-studies of innovative applications of public financing for SFM are shown in box I. These case-studies, presented at the Pretoria workshop sponsored by Denmark, South Africa, and UNDP, illustrate how public funds and MBIs can be used to bring about shifts in forest management and conservation practices.

Box I. Case-studies: innovative public financing

- The World Bank Sustainable Forestry Market Transformation Initiative (SFMTI) and the establishment of the Biodiversity Conservation Network by a $20 million United States Agency for International Development (USAID) grant demonstrate the uses of international public funds to leverage other sources of capital so as to create necessary incentives to bring about shifts in forest management and conservation practices.

- A project carried out by a Costa Rican non-governmental organization in Central America is an example of foreign government funds of the Finnish International Development Agency (FINNIDA) being used to support the local capital market infrastructure by actually creating a local banking system to provide credit to poor rural farmers for forestry-related activities.

- The case of a project in the Niger where the government has introduced and refined well-known market-based mechanisms, such as user fees for fuelwood, illustrates different ways in which fiscal incentives have been changed to bring about more sustainable forest management.

- The case of British Columbia, Canada, shows how revenues generated from royalty increases can be reinvested in the forestry sector to stimulate the transition to improved forest management.

- The Fundación de la Cordillera Volcánica Central (FUNDECOR) case in Costa Rica demonstrates how innovative uses of international and public funds can be used to provide small forest landowners with the necessary incentives for improving management practices.

D. Innovative private sector financing

30. At present, private capital flows into the forest sector in emerging economies are quite significant. In China, an investment of $300 million in foreign capital is planned over the next four years, and in the successor States of the former Union of Soviet Socialist Republics, $5 billion of United States Overseas Private Investment Company (OPIC) guaranteed investment is expected over the next five years. In Papua New Guinea, Malaysian timber companies have invested more than $509 million in the forest sector over the last five years. Billions of dollars of foreign capital are being invested in paper, plywood, and medium-density fibreboard plants that are being built across southern Asia to meet the fast-rising demand for paper and wood products. It is clear that the obstacle to financing SFM from the private sector is not one of insufficient capital; rather, the critical challenge is to redirect and channel existing private sector resources, their capital market investment vehicles and services to activities supporting SFM. This can be accomplished by educating capital markets about the investment opportunities in SFM; by packaging and structuring these opportunities in ways that are easily understood and recognizable to private sector investors; and by reducing risks and incremental costs specific to an emerging industry.

1. Creating conditions to attract capital flows to sustainable forest management

31. There are several strategic elements in capital markets' infrastructure, that is, mechanisms and systems, that facilitate the flow and increase the effectiveness of investment capital. These strategic elements need to be

properly developed in order to build the context and conditions necessary to attract and "jump-start" private sector financing for sustainable forest development. They include:

(a) Engaging and educating capital markets;

(b) Mitigating sector and emerging market risks;

(c) Funding some costs of internalizing environmental externalities such as forest inventories;

(d) Funding some costs of directing capital flows into a new investment area.

32. In order to mitigate various risks in private sector investments, several types of funds could be created, such as early-stage funds and sector-specific funds. Additional funds targeted to the preparation of project and investment plans, and forest inventories are also needed to cover part of the costs of directing capital flows into a new investment area.

33. Other considerations with respect to attracting investment in SFM include political and macroeconomic stability, access to land and the security of property rights. Developing countries, therefore, need to create enabling environments which are critical for investment in SFM. They include:

(a) An effective and appropriate regulatory framework;

(b) A clearly defined forest policy;

(c) Transparent, participatory and democratic decision-making processes;

(d) Capacity in key areas.

34. As discussed in the Panel at its second session, it is also critical that the policy reforms aimed at attracting investment by the private sector be complemented by policies and regulations that also encourage sustainable forest management. There is a need, therefore, to formulate codes of conduct, incentives for better forest management practices, and other forms of innovative measures to encourage private sector activities that reduce damage to the environment.

2. Prospects and other opportunities

35. Several of the case-studies discussed during the Pretoria workshop co-sponsored by Denmark, South Africa and UNDP provide multidimensional examples of innovative private sector financing in SFM that could be emulated elsewhere. Lessons learned from these case-studies (box II) and discussion in the meeting include the following:

- There are opportunities to direct existing flows of capital to the sustainable development of forests;

- Large forest sector companies in Sweden, Finland, Canada, the United States of America, Malaysia, Japan, New Zealand, and Brazil are potential sources of financing for sustainable forest development and for forest-dependent industries;

- Projects providing environmental training for the financial sector on environmental assessments, investment criteria, environmental "due diligence" processes and the like have been funded by some multilateral agencies, and could be extended further to prepare the ground for investments in the forest sector;

- Partnering of an established and successful traditional forest sector player with an emerging sustainable forest development enterprise in a developing country could be an effective way to transfer business capabilities to an SFM industry and increase the likelihood of survival for an emerging business.

Box II. Case-studies: innovative private sector financing

- Xylem Investments of the United States is perhaps the first company that has successfully attracted United States investors to forestry investment in forest plantations in developing countries.

- The O Boticario Foundation is an example of a private sector funding vehicle established to internalize environmental externalities. The Foundation has been established through the contribution of 5 per cent of the net profits of O Baticario, a natural-beauty-care corporation that is dependent on Brazil's natural resources for the ingredients of its product lines. The O Boticario Foundation provides grants for biodiversity conservation.

- The Polish Environmental Protection Bank has as its charter mission to provide preferential loans for environmental protection projects. While the Bank does not focus on the forest sector, the model could be replicated and focused on financing of forest investments in many countries.

- Piqro, a high-quality laminated flooring manufacturer in Mexico, shows how international and domestic investment can be combined to both fund sustainable operations and create vital market linkages in the local sustainable forest value chain.

E. Innovative financing through combined public and private financing

36. Combined funding instruments could provide public financing institutions with a good opportunity to leverage and multiply private capital moving into sustainable forest development. In many developing countries, the private sector depends on public funds to lower the risks of investing in emerging

sectors like sustainable forest management and the early development stage of forest-dependent industries. In the past, public funding in developing countries for the forest sector was directed towards supporting forest conservation programmes and building the institutional capacity of national forest agencies. The discussion in the present subsection focuses on the use of public funds to attract private sector investments to sustainable forest operations.

1. Potential and opportunities of combined public and private financing

37. Several case-studies of combined public and private financing presented at the Pretoria workshop co-sponsored by Denmark-South Africa-UNDP are shown in box III. Lessons learned from these case-studies, include the following:

- Public-private financing partnerships provide an effective means for the public sector to leverage its shrinking resources;

- Public funds can play a key role in directing the attention of the private sector to emerging investment opportunities in SFM, by financing the development and feasibility studies costs of environmentally focused investment funds, as exemplified by the case of the Biodiversity Enterprise Fund for Latin America;

- Public financing can also be used to reduce the "due diligence", technical evaluation and deal preparation costs associated with forest sector investments, thereby making associated investments more attractive to private partners;

- Public funding can be critical in moving large sums of private sector investment into sustainable industries, as in the case of OPIC's guaranteeing of the fund of the Global Environmental Fund, Inc. (GEFI);

- Public funding is especially critical for creating early-stage funds for sustainable forest management and forest-dependent industry, where the cost of assessing and establishing smaller, start-up ventures can often be prohibitive;

- Many environmental-stewardship organizations and government agencies lack the capital needed to achieve their conservation objectives, and therefore need to find ways to access private investment. The United States Tax-exempt Bond for Public Purpose Forestry example offers a model of how this goal is being achieved in the United States.

Box III. Case studies: innovation through mixed public and private financing

- The Global Environmental Fund, Inc. (GEFI)/United States Overseas Private Investment Company (OPIC) Fund offers an example of how guarantees (provided by the Overseas Private Investment Corporation) were leveraged to raise the investment capital for a venture fund targeting developing-country environmental industries.

- Involvement of the Danish International Development Agency (DANIDA) in Ghana is a pioneering example of a bilateral aid agency's assisting in covering the environmental externality costs associated with the transition of a Ghanaian business to sustainable forest management. This case also constitutes a noteworthy example of how a public agency can strengthen market linkages between a local SFM operator and a foreign trading partner.

- Tax Breaks for Reforestation in Panama shows how the Panamanian Government has developed a tax incentive programme to facilitate domestic and foreign private sector investment in enterprises that reforest degraded agricultural lands.

- The use of Tax-exempt Bond for Public Purpose Forestry shows how an existing tax instrument - the tax-exempt bond - can be adapted for application to the forestry sector in the United States, and potentially many other countries. The Biodiversity Enterprise Fund provides a good example of how public funds have been used to leverage private sector equity investment and pay for the cost of deal flow development.

- The Fund for Sustainable Enterprises (FSE) is a recently designed investment that will be initially capitalized at $10 million-$20 million. Funds for FSE will come from the Multilateral Investment of the Inter-American Development Bank (MIF), and will be matched 3:1 from sources such as non-governmental organizations, foundations, corporations and so forth. It is an example of how multilateral funds will be leveraged to raise domestic and international investment.

2. Information system to enhance private sector investment in developing countries

38. During the workshop in Pretoria, a database on incentives and other investment opportunities in the developing countries was considered a useful means to speed up private sector investment. Indeed, the rapid developments in information technology, user-friendly software and the widespread use of the Internet warrants considerations being given to establishing an Internet-based information system to facilitate private sector investment in the developing countries. The private sector or a relevant international agency may wish to initiate and host such an information system.

39. This information system could be developed to provide relevant information to facilitate the marketing of potential investment opportunities such as for forest concessions, conservation projects and so on to the private sector, non-governmental organizations or other interested parties. This could be accomplished by wider dissemination of information about available opportunities, incentives and regulations in different parts of the world. Forest owners or Governments could take advantage of this system to identify a wider range of potential candidates, and assess the package deals offered and the track record of potential investors. Such a system may include relevant information on items such as:

- Governments or forest owners: incentives and enabling conditions in the country; specific forest areas or land (size, stocking and other relevant information on the resource); preferred types of management (for timber production, reforestation, biodiversity conservation, and so on); preferred schemes: joint venture, JI, debt-for-nature swaps and so on; other conditions, such as local participation, technology transfer and so forth;

- Private sector and non-governmental organizations: profiles of companies or organizations; areas of interest (for example, timber production and industries, reforestation, biodiversity conservation, and so on);

- Funds: list of funds, their target interests and target groups; guidelines on how to apply.

40. It should be noted that many forest companies, countries, national forest agencies, non-governmental organizations active in forest-related activities, multilateral development banks, international organizations and bilateral agencies already have Web sites on the Internet. Initially, it would be a matter of designing a home page with the appropriate linkages to existing sites and soliciting the cooperation of participation sites to make the appropriate information available and accessible. Further in-depth analysis and consideration of this suggestion are proposed.

II. PROGRESS IN TECHNOLOGY TRANSFER

41. In most cases, development of specific technologies in forestry is a long-term process. Projects to select suitable species for industrial forest plantations, studies on growth and yield to measure the impacts of various forest management regimes, and other undertakings, are but a few examples of activities that require many years of intensive study before useful results can be produced. Technology transfer and exchange of information and experiences, therefore, are critical elements for developing countries as regards "leapfrogging" in know-how and technology for sustainable development of their forests.

A. Technologies for forestry

42. There is an unprecedented accumulation of technological capability in the world today, including for forestry. Much of it, however, remains unrecognized, underutilized and inadequately shared. It is recognized that no single technology or a set of technologies can be appropriate to all countries. Technologies are often specific for different ecological zones, socio-economic needs and environmental considerations. They are also specific to a large number of activities such as forest resource development, reforestation, sustainable harvesting, value-added processing, integrated waste management, product development and marketing. Considering the present and future challenges facing forests, and ever-increasing diverse demands placed on the sector, technological innovations are critical for sustainable management and utilization of forests.

1. Forest management

43. The technological change and innovation that have taken place during the last decades in forest management, silviculture and logging practices have led to improved formulation of forest management practices, higher and improved yield, lower cost of production and reduced damage to ecosystems. Modern forest management applies silviculture techniques to increase yield and quality of timber of commercial species through controlled regeneration; and replanting with improved-yield and disease-resistant seedlings, developed through modern breeding methods including biotechnology. Similarly, the use of technology in harvesting is evolving from the employment of animals and simple machines to that of tractors, helicopters and balloons which, together with an improved harvesting plan, could increase production as well as reduce ecological damage to the site.

44. Many of these innovations and improved methods have originated in the developed countries. Some of the developing countries - those with a long tradition of applying forest management guidelines and with a higher level of forest-based industries - have already adapted some of these technologies. The harvesting techniques of "reduced impact logging", "balloon logging" and "helicopter logging" have been tried with some success in developing countries, reflecting potential opportunities for technology transfer through North-South as well as South-South cooperation. The latter would rely on adapted technologies or locally developed technologies and could shorten the transfer process of acceptability, owing to the similarity in conditions and culture between the "transferors" and the recipient countries.

2. Forest product utilization

45. During the last several decades, the innovations in technologies for forest product utilization have seen great improvement in terms of higher recovery, and improved quality of material in terms of durability and protection, as well as in the development of new products such as medium-density fibreboard (MDF), higher utilization of non-wood forest products, and so forth. The development of panel products, with their advantages in terms of cost and technical

properties, has involved a move from plywood to particle board and MDF, reflecting an evolution from the use of basically solid wood to the use of fibre. Obviously these technological developments will change the future direction of forest resources and products which will further influence traditional forest silviculture and other forestry practices.

46. Many of the technologies for products manufacturing come with an investment package where training of key personnel is included in the purchase of equipment. Although many of the big manufacturing companies acquire such technology through direct purchase, the majority of small and medium enterprises (SME) still require some assistance and concessions to acquire these technologies. In addition, training is always needed to improve the cost effectiveness of the products manufacturing, particularly as regards the adaptation of these technologies to local conditions and techniques involving the use of wood such as drying, finishing and so on, which are peculiar to the individual timber species used. This kind of information is often obtained only through research and development (R and D) at the national and regional levels. Exchange of information and lessons learned through South-South cooperation offer much promise and need to be promoted.

B. Technology needs assessment (TNA)

47. At its second session, the Panel considered that priority in technology transfer and capacity-building should be given to the following areas: information dissemination to improve land-use planning and improvement of forest yields; technology and methods that could reduce environmental damages due to current forestry practices; species research for tree improvement for rehabilitation, reforestation and nursery development; technology and methods for retaining forest values, including biological diversity; incorporation of indigenous knowledge in plant utilization; new and renewable sources of energy; environmentally sound logging technologies; and development and implementation of national forest strategies (E/CN.17/1996/24, para. 58).

48. As indicated in paragraph 42 above, the majority of technologies for managing forests are well known. However, there is a need to identify technological capacities and requirements for countries in view of their different level of forest development through technology needs assessment (TNA). TNA, necessary for sustainable forest development, should be an integral component of national forest programmes, and should be used as the basis for technology cooperation so as to accelerate the implementation of NFPs.

C. Cooperation in technology transfer

1. Technical cooperation among developed and developing countries

49. Transfer of technology from developed to developing countries takes effect in different ways and involves private entrepreneurs, bilateral and multilateral assistance agencies, the Consultative Group on International Agricultural Research (CGIAR) and regional research institutions, non-governmental organizations and foundations. Foreign investment in developing countries is

often associated with a technology package, including training of experts and workers, management and marketing contracts, foreign equipment and patented technology. Examples of all these forms of cooperation can be found in the forest-based industries of several developing countries.

50. Bilateral and multilateral forestry projects are the most common means of knowledge and technology transfer in forestry. There are many national and regional forest research institutes that have long received international assistance. The Food and Agriculture Organization of the United Nations (FAO), the International Tropical Timber Organization (ITTO) and other forest-related institutions, have published technical publications and provided updated technical information covering almost all aspects of forests. The People and Plants Initiative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) (jointly with the World Wide Fund for Nature (WWF) and the Royal Botanic Gardens, Kew, United Kingdom of Great Britain and Northern Ireland (RBG, Kew)), the database of the United Nations Environment Programme (UNEP) on environmentally sound technologies, the Zero Emissions Research Initiatives of the United Nations University (UNU), the Medicinal Plants Programme of the World Health Organization (WHO), aimed the programme of the United Nations Industrial Development Organization (UNIDO) related to industrial processing and marketing are among the many examples of multilateral technology transfer and cooperation.

2. Technical cooperation among developing countries

51. Sharing of experiences among developing countries can occur through direct exchange or through formal and informal networks. The Latin American Dendroenergy Network, the African Forest Action Networks, and the Asian Network on Medicinal and Aromatic Plants are some of the most active networks. UNDP and other united Nations bodies operate technical cooperation among developing countries (TCDC) programmes that could be applied more directly in technology transfer for forestry. Technical cooperation among countries in transition (TCCT), however, needs stronger support and development.

52. There are many advantages and great potential for South-South cooperation in technology transfer. Many developing countries share characteristics as regards their forests' institutional developments and culture. R and D activities in the utilization of rubber wood and other techniques that have been developed in South-East Asia are suitable for many countries in that region, such as Indonesia, Malaysia and Thailand. Experiences in developing technologies for large-scale plantations and the management of natural forests could potentially also be shared through technology transfer.

D. Increased use of information technology in technology transfer

53. Rapid development in computer technology has improved the hardware and software technologies used by forest-based industries to improve the productivity and quality of products. Almost all of these new technologies can be purchased in the open market.

54. Transfer of technologies will also benefit from rapid developments in computer software and communication technologies. The development of more powerful computers and the Internet have made large storage and exchange of information affordable and more efficient. Many forest institutions, both from developed and from developing countries, now disseminate information on their activities through the Internet. A survey by UNEP has indicated that, of the 84 information systems on environmentally sound technology, there are only a few information systems, such as the Current Agriculture Research Information System (CARIS), the International Information System for the Agricultural Sciences and Technology (AGRIS) and the Centre for Agriculture and Biosciences International (CABI), that contain some substantive components related to forestry technologies. However, at present, a number of forest-related institutions offer their databases and some generously provide free access to their packaged information, while others impose fees.

55. Several obstacles, however, have been encountered in respect of the existing information systems. These obstacles include: difficulties in accessing the systems; language barriers; the requirement of securing package information rather than just technical information; the cost of accessing the databases; and inadequate computer facilities.

56. In view of a lack of a specific information system dedicated to technologies for forests, it would be useful to develop such a system, one describing available technologies in forestry. The main objective of this system would be to provide information on available technologies in forestry applicable at various operational levels, and avenues for exchange of results and lessons learned from applications of specific technologies. The database could include information such as profiles of technologies, their level of development, guidelines for use and specifications for those technologies.

E. Research and development to support sustainable forestry

57. The significance of focused research and development, a crucial underpinning for SFM, cannot be overemphasized. It should be noted that policy-relevant and practical R and D is critical in:

- Clarifying and expanding the available set of options;
- Defining and explaining the consequences of alternative courses of action;
- Minimizing those conflicts that arise from misunderstandings or lack of evidence;
- Helping provide a basis for the progress that we all seek.

58. Compared with the rapid progress in other fields such as agriculture, environment, energy, computer science and medicine, the innovations in forestry during the past decades have been very limited. The Government of Indonesia-Centre for International Forestry Research (CIFOR)-sponsored Dialogue on Forest Research, held in 1995, concluded that the current state of forest science was

inadequate to provide reliable and comprehensive information needed for timely decision-making in forestry. There is an urgent need, therefore, for forest research to provide practical and policy-relevant knowledge to assist decision-making that will sustain and enhance the benefits of forests for present and future generations. Urgent research priorities in forestry include criteria and indicators for SFM, forest assessment and valuation, community participation, forest conservation and cost-effective processing techniques. Additional elements considered essential for providing a more comprehensive approach in research to support SFM include:

- Integrated site-specific socio-economic and biophysical studies to understand the relationship between human development and forests;
- Periodic assessment of forests;
- Examination of trends of supply and demand of forest products;
- Forest policy at national, regional and global levels;
- Environmentally sound technologies of forest-based industries;
- Consideration of the impacts of pervasive external stresses such as climate change, ozone depletion and air pollution on long-term health, productivity and biodiversity of forests.

59. While the Consultative Group on International Agricultural Research (CGIAR) institutions have mandates to conduct some forest-related activities, the Centre for International Forestry Research (CIFOR) and the International Centre for Research in Agroforestry (ICRAF) are the only two international research institutions directly concerned with forestry. The have programmes in policy development; management and conservation of natural forests; reforestation of degraded lands; products and markets; environmental and economic characterization of land-use systems; validation of technologies and issues related to their adoption; and multi-purpose tree improvement. There are also a few regional centres and institutions, such as the International Centre for Integrated Mountain Development (ICIMOD), the Inter American Institute for Cooperation on Agriculture (IICA), the Centro Agronomico Tropical de Investigacion y Enseñanza (CATIE) and the Association of South-East Asian Nations (ASEAN) Institute of Forest Management (AIFM), that are engaged in research and technology transfer on specific aspects of forests within their respective regions. These institutions are considered relatively meagre, however, in terms of the magnitude of research needed to address critical and complex issues, particularly in developing countries. In consideration of the enormous multiple benefits provided by forests, wooded lands and trees, the allocation of resources to forest research, in comparison, for example, with agriculture, is seriously underfunded and needs to be greatly enhanced.

60. While many research institutions in the developing countries are underfunded and need substantial strengthening to carry out more effective research to support SFM, a considerable amount of research on issues related to developing countries is being conducted by institutions in the developed countries such as the International Development Research Centre of Canada

(IDRC), East-West Center, the Natural Resources Institute (NRI, United Kingdom-Overseas Development Administration (ODA)), RBG Kew, the Forestry Programme of the French International Cooperation Centre of Agricultural Research for Development (CIRAD-Forêt), the New York Botanical Gardens, the Australian Centre of International Agricultural Research (ACIAR), the French Institute of Scientific Research and Cooperative Development (ORSTOM), the Commonwealth Scientific and Industrial Research Organization, Australia (CSIRO-Division of Forestry), the Forest Products Laboratory of the United States Department of Agriculture (USDA) Forest Service (FPL-USDA/FS) and the Tropenbos Foundation of the Netherlands. The impressive amount of research capability in these organizations, however, is no substitute for strengthening capacity in developing countries. It is critical that investment in forestry research, in both the developing and the developed countries, be increased substantially to further strengthen their collective capacity to carry out more intensive research in the conservation and utilization of their specific forest types. Sustainable forestry requires long-term investment and it must be based on sound scientific knowledge to maximize benefits and minimize risks. In order to maximize benefits and increase cost effectiveness, there is a need for an international forum to establish a priority research agenda and coordination mechanism.

III. EFFECTIVE COORDINATION

A. Background

61. The problem of financing sustainable forest management and conservation has two main facets: the availability of funds and the effectiveness of their use. Coordination is one way to improve effectiveness. Individual projects may have been well designed and implemented, but their impact has often been constrained by a lack of necessary action in related fields. It is now widely recognized that intersectoral coordination is particularly crucial in forestry, because it involves large areas of land and it frequently competes with agriculture and other sectors for the same land base. Another problem has been the relative proportion of investments by the public and private sectors; although the two sectors have different roles and decision criteria, they need to be appropriately coordinated to maximize synergy.

62. Inadequate coordination of ODA among donor agencies sometimes contributes to overlapping activities and conflicting approaches in forest conservation and development. Extensive efforts have been made to improve donor coordination at both country and international levels, but the scope for improvement is broad, particularly for financing. The need for a holistic approach was already recognized in 1985 when the Tropical Forest Action Plan (TFAP) was launched to address the global problem of deforestation through (a) policy reform; (b) intersectoral linkages and coordination and (c) external financing and donor coordination. While this was a good start, the experts at the Pretoria meeting pointed out that much remains to be done in terms of donor coordination.

63. Sectoral characteristics and past experience clearly suggest that there should be an increasing emphasis on programme, rather than on project-based, financing. The frontier of development in the forestry sector is not mainly in

technology but rather in institutional and human capital. There is a need to assign priority to the policy process as well as to capacity-building, both of which need to be considered in programme financing.

64. TFAP has been the subject of fierce debates, particularly about transparency and participation. A major review of objectives, principles and operating procedures was carried out in 1991 (see the report of the Secretary-General on programme element I.1 (E/CN.17/IPF/1996/8) prepared for the Panel's second session) through independent evaluations and reviews. This exercise resulted in a recommendation to promote a country-driven process and to prepare and implement national forestry programmes (NFP) within a participatory, multidisciplinary and transparent framework. This concept is now broadly accepted, and about 100 countries have a national forest programme at some stage of development.

B. National forest programmes (NFPs) as fundamental coordination instruments

65. At the international level, there is a general consensus about the role of national forest programmes (NFPs) as a fundamental framework for sustainable development. The basic NFP principles recognize the following key elements (see document E/CN.17/IPF/1996/8): national sovereignty; integration with a country's sustainable development strategy; partnership; participation; a holistic and intersectoral approach; a long-term iterative process; capacity-building; policy and institutional reforms; consistency with national policy frameworks and global initiatives; awareness-raising; and harmony with national and international commitments. NFP links together strategic and operational planning and it is specifically designed to increase effectiveness and efficiency in sustainable forestry development at the country level, potentially leading to increased commitments by potential sources of both domestic and external funds. From the point of view of NFP, external financing provides not only the sectoral framework, but also the basis for operational coordination and harmonization of approaches towards forest development and conservation, to avoid overlaps, and to increase and stabilize fund flows. The NFP process is a continuous activity well adapted to a changing policy environment, and provides the necessary basis for investment programming. For further details related to NFP, please refer to the report of the Secretary-General to the Panel at its third session on programme element I.1 (E/CN.17/IPF/1996/14).

1. Decentralization of forestry development and financing

66. Planning and implementation of SFM activities, where appropriate, may preferably be decentralized and carried out at the district (or at the appropriate local) level, with necessary incentives to the private sector, non-governmental organizations and community-based organizations (CBOs). Participation of donors and financial institutions is necessary in the financing of forestry development funds that combine financing from national and international sources, while maintaining decentralized implementation. The principal implications of this approach for donors and financing agencies would entail (a) using local administrative units as a basis for designing donors

supported programmes, (b) increasing reliance on local resources in implementation, both human and material and (c) using participatory structures for programme management, supported by transparent mechanisms for financial control at the local level.

67. The emphasis given to non-governmental organizations and CBOs stems from their comparative advantage as development and conservation agents with the ability to reach and work with the rural population through participatory approaches, their knowledge of local conditions and people's priorities, their ability to mobilize voluntary labour and resources, their ability to deliver services at low cost, and their independence and flexibility, as well as the confidence and trust they inspire with regard to representing local interests and introducing changes.

2. Institutional coordination arrangements at national and subnational levels

68. Institutional coordination among those responsible for the environment, forests, agriculture, land management, and industry in most countries may not always be very effective owing to overlapping mandates, conflicting objectives and a lack of appropriate coordination mechanisms. Representation and participation of all involved bodies in decision-making are essential; these include the ministry of finance, national and commercial banks, environmental and forestry agencies and funds, grass-roots lending associations, forest industry, forest owners and sectoral authorities at the national and subnational levels, as well as external funding organizations.

69. At the policy level, there is a need for increased coordination on policy process and institutional strengthening as well as on the dialogue between donors and the government to create favourable conditions for financial flows. At the operational level, coordination needs to focus mainly on improving efficiency and effectiveness through information exchange, and simplification of administrative procedures, and by ensuring that funds for NFP are directed towards priority areas as recognized in NFP.

C. Donor coordination in NFP implementation

70. The designation of a major implementing organization as an external core support agency (CSA) in some countries has been very helpful in implementing the NFP process. The CSA helps maintain the momentum and technical quality of the review and planning process, assists in the coordination of external assistance, and provides inputs to capacity-building. A country has at least four options for core support and coordination tasks, namely, multilateral development banks (MDB), bilateral agencies, UNDP and FAO.

71. UNDP is developing the concept of forest partnership agreements in which national commitments and donor support would be brought together under a legally binding agreement. This concept is based on the premise that the interests of donors and recipient countries in preventing forest loss or increasing tree cover as well as conserving biodiversity are in accord. Such an agreement would

need to be carefully negotiated to ensure that long-term commitments are made and that any resulting programme is country-led, reflecting national needs and requirements, particularly those of local communities and forest dwellers, and not driven by the requirements of the donor.

72. There is considerable scope for improving in-country cooperation among the four major players mentioned in paragraph 70 above. Additional details concerning international institutional arrangements are available in the report of the Secretary-General to the Panel at its second session on programme element V.1 (E/CN.17/IPF/1996/12), in the outcome of the Swiss-Peruvian initiative, and in the Denmark/South Africa/UNDP Pretoria workshop.

73. Appropriate indicators have to be designed for monitoring and evaluating the effectiveness of international cooperation in financial assistance and technology transfer to support the implementation of NFP. These indicators could be designed to also measure political commitment of the government, level of commitment by local groups, performance of external agencies, successes of the programme (rather than the project) approach and capacity-building. Potential indicators could also include forest policy revisions and adoption by government, preparation and implementation of the national forest programme, extent and nature of the consultative process, coverage and accuracy of regular reporting procedure, inclusion and integration of the NFP into the national sustainable development strategy and the government budget, inclusion and integration of donor programmes in the sectoral investment programme, sectoral disbursements of various sources of financing and the forestry's share of the total, number of project entities and number of long-term expatriates working in forestry.

D. Effective coordination at the international level

74. At the international level, at least three activities are needed to improve coordination: (a) harmonization of coordination and cooperation between policy and planning frameworks at the country level to avoid confusion and overlap, (b) critical evaluation of emerging approaches to facilitate speedy adoption of feasible solutions and (c) easy access to information at international, regional, country and project levels.

75. The harmonization of coordination and cooperation between policy and planning frameworks needs the full participation of all parties involved, both national and international. The Forestry Advisers Group of donors has been important in this field, and its future work is expected to emphasize coordination in country-level efforts through networking, but it will also continue to contribute to policy development and other coordination issues.

76. The exchange of information and experience among countries will continue to be increasingly important in the future. FAO's former TFAP Coordination Unit (now the National Forestry Action Programme Support Unit) has played a key role in compiling basic information on country-level exercises. Reliability of the information depends on the commitment of countries to providing the data and FAO's ability to obtain firsthand information through other channels. The

reports and database have mainly served donor and international agencies and the usefulness of this information needs evaluation.

An information system to improve coordination

77. Although there are existing information database systems developed to manage the implementation of NFP in forest-related agencies, these information systems should be reviewed and improved to enhance coordination and increase the effectiveness of financial assistance and technology transfer. The improved information systems should be able to provide information to donors about priorities as determined by countries' NFP, and about ongoing and completed projects and programmes. Countries would have access to information, through the Internet, about funding opportunities for their projects or programmes. In addition, information about ongoing and past programmes would provide opportunities for exchange of information and serve to avoid duplication. The system might contain at least the following basic information concerning four principal aspects:

- Government or recipient agency: profiles of financial and technical assistance, ongoing and completed projects, new areas that require assistance;
- Donor and multilateral agencies: list of projects and their profile, areas of interest and guidelines on how to apply for assistance;
- Funds for technical support: list of funds, their target interest and target group, guidelines on how to apply;
- List of experts.

IV. CONCLUSIONS AND PROPOSALS FOR ACTION

78. It is recognized that the ability of countries to finance their SFM activities varies from country to country, depending on a combination of factors such as national per capita income, as well as the size and quality of their forest resources, the state of development of their forest-based industry, and so on. These diverse factors also influence a country's capability to raise financial resources and to acquire the required technology.

A. Public finance

79. ODA is still a very critical instrument and could continue to play a vital role as a source of finance for sustainable development of forests in the developing countries. However, as the prospect of its increase in real terms in future is not encouraging, the challenge is to ensure that ODA is deployed more efficiently and effectively.

80. While there is a limited possibility for generating additional resources through public finance, it could still be generated through various market-based instruments such as taxes, levies, user fees, and so on.

Proposals for action

The Panel may wish to:

- Request donor countries to increase the proportion of their ODA contribution to support programmes for SFM and industrial development;

- Urge countries, through their representatives on governing bodies, to support increased and improved programmes for SFM in multilateral organizations;

- Request relevant organizations in forest such as ITTO, FAO and UNDP to set up a working group to further explore innovative ways to generate additional financial resources, in particular at the international level;

- Urge countries to introduce and continue using market-based instruments (MBIs) such as user fees, and increase rent capture, levies, and so on as a tool to mobilize domestic financial resources and reduce cost owing to unsustainable forestry practices.

B. Private sector investment

81. There is evidence of a shift in capital flows from public to private sources to support SFM. It is critical, therefore, for countries to take the necessary steps to introduce appropriate policy reforms to attract private sector investment. The policy reforms aimed at attracting investment by the private sector should complement policies and regulations that also encourage sustainable forest management. There is a need to formulate a code of conduct, incentives for better forest management practices, and other forms of innovative measures to encourage private sector activities that reduce damage to the environment.

82. Proposals for Action

The Panel may wish to:

- Urge developing countries to reform their policies and regulations to attract private sector investment. Various instruments such as financial incentives and leverage from public funds may be introduced, where appropriate, in collaboration with donors;

- Encourage countries to formulate policies and incentives that favour forestry practices that are consistent with SFM. Formulation of a code of conduct and, where necessary, independent auditing to closely monitor harvesting practices may be considered. The Panel,

accordingly, may request FAO, ITTO, UNEP and other relevant bodies, in cooperation with the private sector, to develop a code of conduct for forest-based private companies;

- Call upon developed countries to formulate and create incentives to encourage their private sector to invest in sustainable forest management and utilization in developing countries.

C. Technology transfer

83. Technology needs assessment (TNA), which requires consultation with all interested parties involved in SFM such as government, non-governmental organizations, private sector scientists, and so on, should be employed as a tool to identify the technologies that are required for sustainable management and utilization of forests.

84. Owing to similarity in terms of forest types, institutions and culture, there is a considerable potential for South-South cooperation to complement North-South cooperation in technology transfer.

85. Some obstacles to better use of current information systems, available on environmentally sound technologies (EST), include lack of awareness, language barriers, lack of training, difficulty in accessing the information, lack of packaged information and lack of on-line facilities to access these information systems.

86. Strengthening national research and training institutions is a critical measure with respect to increasing absorptive capacity for technology transfer and ensuring adequate capability to adapt these technologies to local conditions.

Proposals for action

The Panel may wish to:

- Urge countries to assess and explicitly identify technological requirements of their countries through TNA in order to achieve sustainable management and utilization of their forests. The assessment and identification of specific technology needs should be consistent with the recognized priorities within their national forest programmes;

- Call upon countries to formulate policies and incentives that encourage the private sector to use environmentally sound technologies (ESTs);

- Promote South-South cooperation in technology transfer through private sector investment, joint ventures, exchange of information and greater networking by institutions in the South;

- Request a group of internationally recognized experts, supported by CIFOR, ICRAF and IUFRO, to propose measures to overcome inadequate research capacity in the developing countries and to develop and adapt technologies for SFM. Proposed measures may include strengthening existing national research institutions, encouraging national research institutions to play a more active regional role and considering the feasibility of creating new international research institutions and networks dedicated to sustainable management and utilization of forests and forest policy research.

D. Coordination

87. Coordination in financing sustainable forestry is critical to improve effectiveness and efficiency in fund-raising and utilization, but it should not be an end in itself. Poor coordination of funding often results in waste or misuse of scarce resources. Coordination needs to be addressed at the national, regional and global levels, and it should include all interested parties, including the private sector.

Proposals for action

The Panel may wish to consider the following proposals for action to strengthen coordination at the national and the international level:

(a) National-level coordination: steps to improve coordination between in-country aid agencies and national interested parties reflect the following points:

- Governments are primarily responsible for in-country coordination;

- NFPs are established as country-driven processes and as a framework for coordination of financing and international coordination;

- In-country donor coordination is supported by an external agency, selected by government and based on its long-term commitment to the sector;

- Planning and implementation of development activities, wherever possible, is decentralized and carried out at the district or appropriate local level emphasizing incentives to the private sector, non-governmental organizations and CBOs;

- All concerned national bodies including the finance ministry, the private sector, national and commercial banks, environmental and forestry funds, grass-roots lending associations, forest industry, forest owners, sectoral authorities at national and subnational levels and external funding organizations need to be involved in the planning and implementation process;

- Pooling of resources needs to be encouraged as a means of improving efficiency.

(b) International-level coordination: steps to improve coordination of financial assistance at the international level include the following:

- A shared vision of SFM developed by Governments, international organizations and donor communities providing common objectives and a basis for coordination;
- Elimination of duplication and competition between donors;
- Provision of a better flow of synthesized information on programme progress, policy development, best practices and lending strategies, including establishment of specialized databases;
- Development of appropriate indicators for monitoring and evaluation of the effectiveness of international cooperation in financial assistance and technology transfer;
- Exploration of the feasibility of special partnerships for forests, based on pooled resources supporting comprehensive programmes, through further study and national experiments;
- Mandatory coordination (in-country and at the international level) among intergovernmental organizations within the United Nations system;
- Encouragement of informal coordination mechanisms such as the Forestry Advisers Group and those of non-governmental organizations.

E. Information systems

88. In view of the rapid progress of information technology and its role in providing information services that support activities for sustainable forest management, there is a need to review and improve existing information systems. Attention should be given in three areas as discussed in this report, namely, increasing private sector investment, speeding up technology transfer to developing countries, and improving coordination. It is desirable for the information systems to be Internet-based for this would allow easy access and information-sharing among multilateral agencies, countries' institutions, non-governmental organizations and other interested parties.

Proposal for action

- The Panel may wish to invite relevant multilateral forest agencies and international organizations to review and initiate the development of improved information systems that support activities for sustainable forest management, particularly so as to facilitate private sector investment, speed up technology transfer to developing countries and improve coordination in financial assistance.

Notes

1/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ Ibid., annex III.

3/ See report of the Secretary-General on financial resources and mechanisms for sustainable development: overview of current issues and developments (E/CN.17/1996/4 and Add.1); note verbale dated 1 March 1996 from the Permanent Representative of Japan to the United Nations addressed to the Secretary-General containing the Chairman's Summary of the Third Expert Group Meeting on Financial Issues of Agenda 21 (E/CN.17/1996/28); and Official Records of the Economic and Social Council, 1996, Supplement No. 8 (E/1996/28), chap. I, sect. C, decision 4/14.

4/ A/AC.237/18(Part II)/Add.1 and Corr.1, annex I.